

IN THE DRAWINGS

Applicants acknowledge that the drawings as filed on November 19, 2003 are accepted.

REMARKS

Claims 1-31 were pending. Claim 7 has been canceled. Therefore claims 1-6 and 8-31 are pending in the present application.

Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

Claim 7 has been canceled to address the Examiner's objection under 37 C.F.R. § 1.75. The objection under 37 C.F.R. § 1.75 is now moot. Further the Abstract section of the Specification has been amended to correct a typographical error, *i.e.*, the redundant phrase "difference is" has been deleted. No new subject matter has been added as a result of the amendment to the Specification.

The Examiner rejected claims 1-5 and 9-12 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,910,768 (*Sues*). Applicant respectfully traverses this rejection.

Applicants respectfully assert that *Sues* clearly does not teach, disclose or suggest all of the elements of claims of the present invention. The Examiner misinterpreted the disclosure of *Sues* to read upon the calibration of a gain called for by claims of the present invention. Firstly, *Sues* simply does not contemplate or even suggest any type of a calibration of a gain, in contrast with claim 1 of the present invention. Further, *Sues* simply does not disclose determining any type of a gain and performing any type of adjustment of the gain. *Sues* is directed to reducing imbalance of a tip and ring signal. *Sues* discloses determining the amplitude and phase differences of a differential signal and adjusting the amplitude and the phase to produce a perfectly balanced longitude signal. *See* col. 4, lines 15-58.

The Examiner argues that performing a calibration of a gain is the equivalent to measuring the amplitude of the differential signal with respect to an amplitude reference. *See* page 3 of the Office Action dated 07/17/06. This argument demonstrates a clear misunderstanding of the prior art reference and its relationship to the claims of the present invention. The calibration of the gain is not anticipated by the measurement of an amplitude of a differential signal with respect to an amplitude reference, contrary to the Examiner's assertion. The calibration of the present invention includes determining the gain of a first portion of a differential signal associated with the first portion. The claim also calls for determining the gain of a second portion of the differential signal associated with the second portion. Simply comparing the amplitudes, as disclosed by *Sues* does anticipate these elements.

Further, claim 1 of the present invention calls for determining the difference between the respective gains of the first and second portions and modifying at least one of the gains based upon a comparison. Simply adjusting the phase and the amplitude of the longitude signal such that they are balanced, does not read upon these elements. *See* claim 4, lines 56-61. In contrast to the disclosure of *Sues*, claims of the present invention call for modifying the gain by determining the respective gains of the first portion and the second portion of a differential signal. Clearly, the Examiner fails to point to any disclosure in *Sues* that anticipates the determination of a particular gain. For example, in order to satisfy the element of receiving a first portion of the differential signal and determining the gain associated with the first portion, the Examiner merely cites, column 3, lines 61-67, which merely refers to the reception of a tip and ring signal. No such disclosure exists in the Examiner's citation or anywhere in *Sues* that would anticipate the determination of a particular gain. Further, *Sues* does not contemplate

calibration because it doesn't even mention any type of test load directed to calibration at all. The Examiner has clearly misapplied *Sues* to argue anticipation of various elements, such as determining the gain, as called for by claims of the present invention. Therefore, for at least these reasons, *Sues* simply does not teach, disclose or suggest all of the elements of claim 1 of the present invention. As described below, the additional cited prior art does not make up for the deficit of *Sues*.

Additionally, claim 9 calls for an apparatus that comprises means for receiving a first portion of a differential signal and determining a gain, as well as determining the gain of a second portion of the differential signal, means for determining the difference between the respective gains and means for modifying at least one of the gains. As described above, *Sues* simply does not disclose determining the gains and comparing them and modifying one of the gains for at least the reasons cited above. Further, claim 10 calls for a calibration unit that is capable of determining the gain associated with a first and a second portion of a signal and adjusting at least one of the gains based upon that difference. As described above, *Sues* does not teach or suggest determining the gain associated with a first and a second portion of a signal and adjusting at least one of the gains based upon that difference. Therefore, for at least the reasons cited above claims 10 is not taught, disclosed, or suggested by *Sues*.

Independent claims 1, 9, and 10 are allowable for at least the reasons cited above. Further, dependent claims 2-6 and 8, which depend from independent claim 1, and dependent claims 11-20, which depend from claim independent claim 10, are also allowable for at least the reasons cited herein.

The Examiner rejected claims 21-24 under 35 U.S.C. § 103(a) as allegedly being unpatentable over *Sues*, in view of U.S. Patent No. 6,724,880 (*Lynch*). Applicant respectfully traverses this rejection.

The Examiner rejected claims 21-24 by asserting that *Sues* allegedly teaches all of the elements of claim 21 except for the element of the line card. The Examiner then asserted *Lynch* to make up for this deficit. Claim 21 calls for a system that comprises a line card, which is capable of performing a calibration of a gain, which includes determining the respective gains of a first and a second portion of the differential signal. Claim 21 also calls for determining their difference and adjusting at least one of the gains based upon the difference, for at least the reasons cited above. As described above, *Sues* simply does not disclose determining the respective gains of a first portion and a second portion of a differential signal, determining their difference and modifying at least one of the gains based upon the difference. The simple discussion of adjusting the amplitude and phase of a particular signal in *Sues* does not anticipate the elements of claim 21, as described above. Therefore, *Sues* does not make obvious various elements of the claimed invention including the line card. Therefore, simply adding the disclosure of *Lynch* to provide the line card element does not make up for the deficit of *Sues*. *Lynch* does not disclose determining the differential respective gains of the first and second portions of the differential signal, and as described above, *Sues* does not disclose these elements either. Therefore, the combination of *Lynch* and *Sues* does not make obvious all of the elements of claim 21 of the present invention.

Further, those skilled in the art, without using improper hindsight reasoning, would not combine the teachings of *Sues* and *Lynch* to make obvious all of the elements of claim 21 of the

present invention. Simply because both cited prior art references are directed to communications circuits does not support a contention that the detailed elements of claims of the present invention would be made obvious by their combination. In fact, the Examiner fails to point to any motivation that one skilled in the art would have had based upon the disclosure in the cited prior art, that would lead a person skilled in the art to make obvious the elements of claim 21 of the present invention. *Lynch* is merely directed to implementing an N:1 sparing arrangement to connect a number of secondary lines to a bus, based upon a control signal. In contrast, as *Sues* is directed to adjusting the amplitude and the gain of a differential signal to perfectly balance a differential signal. Therefore, there is no disclosure, without using improper hindsight reasoning, that would prompt one skilled in the art to combine *Lynch* and *Sues* to make obvious all of the elements of claim 21 of the present invention.

Further, the Examiner fails to show that there is a reasonable expectation of success if *Lynch* and *Sues* were to be combined based upon their disclosures. Therefore, the Examiner has failed to show any one of the three required prongs for providing a *prima facia* showing of obviousness of claim 21 of the present invention. Further, as described above, even if *Lynch* and *Sues* were combined, all of the elements of claim 21 of the present invention are not made obvious. Therefore, claim 21-24 are not made obvious by the disclosures of *Lynch* and *Sues* and thus, are allowable for at least the reasons cited above.

The Examiner rejected claims 6-8 and 15-17 under 35 U.S.C. 103(a) as being unpatentable over *Sue* as applied to claims 1, 10, and further in view of U.S. Patent No. 5,436,953 (*Nilson*). Applicant respectfully traverses this rejection.

As described above, the underlying independent claims, *i.e.*, claims 1 and 10, from which claims 6-8 and 15-17 respectively depend, are not made obvious by the disclosure of *Sues*. For example, the determination of the first and the second gains and determining their differences and adjusting at least one of the gains is not taught, disclosed or suggested by *Sues*. Further, *Nilson* does not make up for this deficit. The Examiner adds *Nilson* to the disclosure of *Sues* to argue obviousness of the element of switching the test load. However, the mere addition of the concept of test load to the disclosure of *Sues*, does not make obvious all of the elements of claims 6-8 and 15-17 of the present invention.

Nilson merely discloses calculating the longitudinal balance by measuring the voltage at each wire and combining them with digital reference signals to provide drive representative values and metallic representative values of a pair of a long wire. This is clearly directed to a different subject matter as *Sues*, which is directed to adjusting the longitudinal balance based upon the amplitude and the phase of a differential signal. Therefore, those skilled in the art simply would not combine *Sues* and *Nilson* to make obvious all of the elements of claims 6-8 and 15-17 of the present invention.

Further, the addition of *Nilson*, does not disclose determining the gain based upon examining the effects due to a test load. *Nilson* merely discloses that its setup requires iterative adjustments into calibration loads to null out dry imbalance. *See* column 4, lines 27-28. However, *Nilson* simply does not disclose using a test load and then determining a gain on a portion of a differential signal. Simply disclosing iterative adjustments to calibration loads to achieve nullification of drive imbalance does not make obvious the test loads called for by claims 6-8 and 15-17 of the present invention, which refers to determining a gain of a particular portion of

the differential signal. Therefore, simply combining *Nilson* and *Sues* does not make obvious all of the elements of claims 6-8 and 15-17 of the present invention.

Additionally, the Examiner has failed to show motivation in the cited prior art that would prompt those skilled in the art to combine *Nilson* and *Sues* to make obvious all of the elements of claims 6-8 and 15-17 of the present invention. However, even if *Nilson* and *Sues* were to be combined, all of the elements of 6-8 and 15-17 would not be taught, disclosed or made obvious. Therefore, claims 6-8 and 15-17 of the present invention are allowable for at least the reasons cited herein.

The Examiner rejected claims 13-14 under 35 U.S.C. 103(a) as being unpatentable over *Sues*, as applied to claim 10, and further in view of U.S. Patent No. 4,431,874 (*Zobel*). Applicant respectfully traverses this rejection.

Independent claim 10, from which claims 13 and 14 depend, calls for a calibration unit that is capable of determining the gain associated with a first and a second portion of a signal and adjusting at least one of the gains based upon that difference. As described above, *Sues* does not teach or suggest determining the gain associated with a first and a second portion of a signal and adjusting at least one of the gains based upon that difference. *Zobel* does not teach make up for this deficit. Therefore, all of the elements of the underlying claim, *i.e.*, claim 10, from which claims 13 and 14 depend, are also not taught, disclosed or suggested by *Sues* and *Zobel*.

The Examiner provides the disclosure of *Zobel* to assert obviousness of the elements of the third amplifier and the fourth amplifier called for by claims 13 and 14 of the present invention. However, *Zobel* merely refers to a loop current being provided to a two-wire bi-

directional describer loop to suppress longitude signals generated at the two-wire loop input. **Zobel** clearly does not make obvious determining the gain of any portion of a differential signal, and as described above, **Sues** also does not make obvious such subject matter. Therefore, the combination of **Zobel** and **Sues** simply does not make obvious all of the elements of claims 13 and 14 of the present invention.

Further, the mere addition of any type of a third amplifier and a fourth amplifier does not make up for the deficit of **Sues**. Also, the Examiner has failed to show motivation that would prompt those skilled in the art to combine **Zobel** and **Sues** to make obvious all of the elements of claim 13-14. The suppression of longitudinal signals of **Zobel** is sufficiently different from the adjustment of the amplitude and phase of a signal of **Sues**, that those skilled in the art would not, without using improper hindsight reasoning, combine them to make obvious all of the elements of claims 13 and 14 of the present invention. Therefore, claims 13 and 14 of the present invention is not taught, disclosed or made obvious by **Sues**, **Zobel**, or their combination. Therefore, claims 13 and 14 of the present invention are allowable.

The Examiner rejected claims 18-20 under 35 U.S.C. 103(a) as being unpatentable over the combination of **Sues** and **Nilson**, as applied to claim 15, and further in view of “*Signal Processing Chips Enrich Telephone Line-Card Architecture*”; *Apfel, et. al. Electronics*; May 5, 1982; pp. 113-118 (**Apfel**). Applicant respectfully traverses the Examiner’s rejection.

As described above, the combination of **Sues** and **Nilson** simply does not disclose the calibration unit of claim 10 (from which claims 18-20 depend), which calls for the determination of the gains of the first portion and the second portion of a differential signal as described above. The Examiner adds **Apfel** to disclose a subscriber line audio processing circuit (SLAC). The

mere disclosure of the concept of a SLAC to the disclosures of *Sues* and *Nilson* does not make obvious all of the novel elements of claims 18-20 of the present invention. As described above, the underlying claims, from which claims 18 and 20 depend, is clearly not taught, disclosed or suggested by *Sues*, *Nilson* and/or *Apfel*. Therefore, claims 18-20 which depend from claim 10, are also allowable for at least the reasons cited above.

The Examiner rejected claims 25-26 under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sues* and *Lynch* as applied to claim 22, and further in view of U.S. Patent No. 4,431,874 (*Zobel*). Applicant respectfully traverses the Examiner's rejection.

The Examiner combines the disclosure of *Sues*, *Lynch* and *Zobel* to reject claims 22-23 of the present invention, which depend from independent claim 21. As described above, *Sues* simply does not disclose determining gains of the first and second portions of the differential signal as described above. Additionally, *Lynch* and *Zobel* also do not disclose such subject matter, and therefore, their combination does not make obvious all of the elements of claim 21 of the present invention, from which claims 25-26 depend. Further, the Examiner asserts that it would have been obvious based on the combination of *Zobel*, *Sues* and *Lynch* to provide sufficient current to drive a load. The Examiner offers no evidence as to why this is true. Further, even if these were combined, the underlying claim from which 25-26 depend, is not taught, disclosed or made obvious. Therefore, dependent claims 25-26 are also allowable for at least the reasons cited above.

Further, the Examiner fails to show motivation why those skilled in the art would combine *Zobel*, *Sues* and *Lynch* to make obvious all of the elements of claims 25-26 of the present invention. Therefore, the Examiner failed to illustrate a *prima facia* case of obviousness

of claims 25-26. Therefore, claims 25-26 of the present invention are allowable for at least the reasons cited above.

The Examiner rejected claims 27-29 under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sue*, *Lynch* and *Zobel* as applied to claim 26 and further in view of *Nilson*. Applicant respectfully traverses the Examiner's rejection.

The Examiner cited the combination of *Sues*, *Lynch*, *Zobel* and *Nilson* to argue obviousness of the test load called for by claim 27-29 of the present invention. However, as described above, the underlying elements relating to determining the gains of the first and second portions of the differential signal and determining their difference to adjust at least one of the gains is clearly not taught by *Sues*. *Lynch*, *Zobel* and *Nilson* do not make up for this deficit. Therefore, their combination does not make obvious all of the elements of claims 27-29 of the present invention. Further, the Examiner has failed to show motivation why those skilled in the art would combine *Sues*, *Lynch*, *Zobel* and *Nilson*, as described above, without using improper hindsight reasoning. Therefore, the Examiner has failed to show a *prima facia* obviousness of claims 27-29 of the present invention. Accordingly claims 27-29 of the present invention are allowable for at least the reasons cited above.

The Examiner rejected claims 30-31 under 35 U.S.C. 103(a) as being unpatentable over the combination of *Sues*, *Lynch*, *Zobel*, and *Nilson* as applied to claim 27, and further in view of *Apfel*. Applicant respectfully traverses the Examiner's rejection.

The Examiner cited *Sues*, *Lynch*, *Zobel*, *Nilson* and *Apfel* to piece them together to argue obviousness of claims 3-31 of the present invention regarding the SLAC and the SLIC.

However, as described above, *Sues* fail to teach the elements of the underlying claim 21 of the present invention and, therefore, the combination of *Zobel*, *Nilson* and *Apfel* does not make obvious all of the elements of claims 30-31 of the present invention. Further, the Examiner argues that it would have been obvious to combine the teachings of *Apfel*, *Sues*, *Nilson*, *Lynch* and *Zobel* to integrate various components into a single chip. However, the Examiner fails to provide any evidence to support this assertion. Firstly, the Examiner fails to show why those skilled in the art would be motivated to combine *Sues*, *Lynch*, *Zobel*, *Nilson* and *Apfel*. Secondly, the Examiner fails to show why those skilled in the art would be motivated to integrate them into a single chip. The Examiner fails to offer evidence why those skilled in the art would combine the cited prior art to make the rejections of claims 30-31 of the present invention. However, as described above, even if all of the elements of the cited prior art were to be combined, all of the elements of claims 30-31 would not be made obvious for at least the reasons cited above. Hence claims 30-31 are also allowable.

In light of the amendments and arguments provided herein, Applicant respectfully asserts that claims 1-6 and 8-31 of the present invention are allowable. Accordingly, a Notice of Allowance is respectfully solicited.

Reconsideration of the present application is respectfully requested.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4069 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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